The purpose of this Modification 2 to DARPA-BAA09-23 Dynamic Prevention of Biofouling (DyPOB) is to make the following changes to the Announcement:

The following sections are revised as follows:

Part One: Overview Information

- **Dates**
  - **Initial Full Proposals are due by 4:00PM ET, May 21, 2009.**

I. Funding Opportunity Description

Specifically excluded is research that results primarily in evolutionary improvements to the existing state of practice and those that include the use of biocides in the coating (i.e. chemical compound – organic, inorganic or organometallic - that is contained within the coating whose function is to kill juvenile/larvae of marine foulers. This includes tethered biocides, natural or degrading biocides.)

Paragraph C - Program Goals and Milestones

1. Phase 1

Phase I will be a research and demonstration effort of not more than 24 months.

Phase I metrics are to develop biofouling resistant coating systems,

(i) and produce at least 24 panels each with dimensions of 4 inch x 8 inch,

(ii) that do not contain or produce biocides,

(iii) and demonstrate performance equal to or better than a standard antifouling coating (BRA 640 conditioned to achieve a steady state Cu leach rate) at the end of three month static field tests at test sites in Florida, Hawaii, California, and Singapore. This testing will be based on the protocols specified in Section 4.4.1.1 of MIL-PRF-24647D. These tests will be separately funded and conducted by the Government at a DOD sponsored facility. The protocols specified in Section 4.4.1.1 of MIL-PRF-24647D can be found at: http://www.nstcenter.com/docs/milspecs/mil-prf-24647%20-%20paint%20system,%20anticorrosive%20and%20antifouling,%20ship%20hull/mil-prf-24647d.pdf,

(iv) and are expected to be durable without losing effectiveness and without maintenance for more than two years,

(v) and are estimated to have (material and application) costs comparable to current coatings when projected to full commercial scale.

Throughout Phase I performers will be able to supply small samples of coatings, and if sufficient progress is made interim samples for field testing, to government sponsored laboratories in order to develop and optimize their performance for eventual field testing at the end of Phase I. Laboratory testing is typically performed on microscope slides (1 inch x 3 inch) coated with the developmental coatings along with any controls/standards. Assays will be performed to determine their efficacy in deterring settlement of algae (Ulva spores), diatoms, and barnacles in a laboratory environment (species are studied separately) under appropriate conditions (typical marine salinity and pH). Field testing will consist of a three month static immersion test in which the coatings will be exposed to the biofouling communities at the sites in Florida, California, Hawaii and Singapore. In addition to experiencing the biofouling pressure the coatings will also experience typical tidal flows.

2. Phase II

Phase II is expected to be a research and demonstration effort of not more than 24 months.

Phase II metrics are to develop biofouling resistant coating systems,

(i) and produce at least 24 panels each with dimensions of 10 inch x 12 inch,

(ii) that do not contain or produce biocides,

(iii) and demonstrate performance at least 2x better than a standard antifouling coating (BRA 640 conditioned to achieve a steady state Cu leach rate) at the end of three month static field tests at test sites in Florida, Hawaii, California, and Singapore. This testing will be based on the protocols specified in Section 4.4.1.1 of MIL-PRF-24647D. These tests will be separately funded and conducted by the Government at a DOD sponsored facility. The protocols specified in Section 4.4.1.1 of MIL-PRF-24647D can be found at: http://www.nstcenter.com/docs/milspecs/mil-prf-24647%20-%20paint%20system,%20anticorrosive%20and%20antifouling,%20ship%20hull/mil-prf-24647d.pdf,

(iv) and are expected to be durable without losing effectiveness and without maintenance for more than two years,

(v) and are estimated to have (material and application) costs comparable to current coatings when projected to full commercial scale.

Throughout Phase II performers will be able to supply small samples of coatings, and if sufficient progress is made, interim samples for field testing, to government sponsored laboratories, in order to develop and optimize their performance for eventual field testing at the end of Phase II. Laboratory testing is typically performed on microscope slides (1 inch x 3 inch) coated with the developmental coatings along with any controls/standards.

Assays will be performed to determine their efficacy in deterring settlement of algae (Ulva spores), diatoms, and barnacles in a laboratory environment (species are studied separately) under appropriate conditions (typical marine salinity and pH). Field testing will consist of a three month static immersion test in which the coatings will be exposed to the biofouling communities at the sites in Florida, California, Hawaii and Singapore. In addition to experiencing the biofouling pressure the coatings will also experience typical tidal flows. During Phase II, a hydrodynamic testing apparatus will be available to examine the condition and wear of coatings under hydrodynamic stress (up to 14 knots) for several weeks duration.

IV. Application and Submission Information

Paragraph C. Proposal Information

SubParagraph 1. Full Proposal Format

Volume I, Technical and Management Proposal

Section III. Detailed Proposal Information

C. {4} Time-phased schedule and payable milestones chart. Phase I will be a research effort not exceeding 24 months. Higher consideration will be given to efforts that will satisfy the metrics in less time. **Note: Measurable <u>critical</u> milestones should occur every 2-3 months after start of effort.** These payable milestones should enable and support a go/no go decision for the next part of the effort, and should therefore be tied to the program metrics specified in enhancing those described in C. (page 17) of Section II. (Summary of Proposal). Do not include proprietary information with the milestones. Additional interim non-critical milestones are also highly encouraged at regular intervals. Where the effort consists of multiple portions which could reasonably be partitioned for purposes of funding, these should be identified as options with separate cost estimates for each.

Volume II, Cost Proposal

D. Submission Dates and Times

1. Initial Full Proposal Date

To receive consideration under this BAA, **FULL PROPOSALS MUST BE RECEIVED ON OR BEFORE 4:00 PM ET, on May 21, 2009** in order to be considered during the initial round of selections.